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SERIAL NUMBER	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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07/967,622 10/28/92 WEISS

S A-57518/DJB/

EXAMINER

RADIO, S

ART UNIT

PAPER NUMBER

7

18M1/1004

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1808

DATE MAILED:

10/04/93

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

☒ This application has been examined ☒ Responsive to communication filed on 8/16/93 ☐ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), 0 days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- | | |
|---|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited by Examiner, PTO-892. | 2. <input type="checkbox"/> Notice of Draftsman's Patent Drawing Review, PTO-848. |
| 3. <input checked="" type="checkbox"/> Notice of Art Cited by Applicant, PTO-1449. | 4. <input type="checkbox"/> Notice of Informal Patent Application, PTO-152. |
| 5. <input type="checkbox"/> Information on How to Effect Drawing Changes, PTO-1474. | 6. <input type="checkbox"/> |

Part II SUMMARY OF ACTION

1. ☒ Claims 1-13 are pending in the application.

Of the above, claims _____ are withdrawn from consideration.

2. ☐ Claims _____ have been cancelled.

3. ☐ Claims _____ are allowed.

4. ☒ Claims 1-13 are rejected.

5. ☐ Claims _____ are objected to.

6. ☐ Claims _____ are subject to restriction or election requirement.

7. ☐ This application has been filed with Informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.

8. ☐ Formal drawings are required in response to this Office action.

9. ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-848).

10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____, has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).

11. ☐ The proposed drawing correction, filed _____, has been ☐ approved; ☐ disapproved (see explanation).

12. ☐ Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____; filed on _____.

13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.

14. ☐ Other

EXAMINER'S ACTION

Claims 1-13 are currently pending in the instant application and have been examined on the merits.

Claims 1-13 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point
5 out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 11 and 12 are rejected for lacking proper antecedent basis for the phrase "the tissue".

The following is a quotation of 35 U.S.C. § 103 which forms
10 the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not
15 identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which
20 the invention was made.

Subject matter developed by another person, which qualifies
25 as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

This application currently names joint inventors. In
30 considering patentability of the claims under 35 U.S.C. § 103, the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant

is advised of the obligation under 37 C.F.R. § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of potential 35 U.S.C. § 102(f) or (g) prior art under 35 U.S.C. § 103.

Claims 1-10 are rejected under 35 U.S.C. § 103 as being unpatentable over Reynolds et al (Rest. Neuro. & Neurosci.) in view of Masters et al.

Reynolds et al teach isolating neural stem cells from a donor tissue and proliferating the stem cells by culturing the cells in a medium comprising EGF. The EGF-generated progenitor cells were differentiated by culturing the stems cells in a second medium in the absence of EGF.

Reynolds et al differs slightly from the claimed invention by not adding a second growth factor to the second culture medium.

However, Masters et al teaches that growth factors such as IGF-I accelerates the differentiation of neural cells into differentiated neural cells. Thus it would have been obvious to one of ordinary skill in the art to add a growth factor which is known to accelerate the differentiation of neural cells to the culture which is already differentiating in the absence of EGF.

Accordingly, the claimed invention would have been prima facie obvious to one of ordinary skill in the art at the time the claimed invention was made, especially in the absence of

sufficient, clear and convincing evidence to the contrary.

Claims 1-10 are rejected under 35 U.S.C. § 103 as being unpatentable over Cattaneo et al (Letters to Nature) taken with Reynolds et al (Soc. for Neurosci. Ab.) or Anchan et al (J. Cell. Biol.) and further in view of Masters et al.

Cattaneo et al teaches culturing neural stems in a medium containing bFGF and then culturing the stem cells in a medium containing bFGF and NGF in order to proliferate the stem cells. The stem cells proliferate in response to NGF but only after they have been exposed to bFGF. The number of cells in the culture which proliferates is increased as a result of this pre-exposure to bFGF and further culturing in bFGF and NGF. Cattaneo et al proceeds to discuss that when the growth factors are removed the cells differentiate.

Cattaneo et al differs from the claimed invention by proliferating the stem cells in the second culture medium which comprises bFGF and NGF. The instant claims proliferate the stem cells in the second culture medium which comprises bFGF and EGF.

Reynolds et al teach that culturing neural precursor cells in a medium comprising EGF or TGF causes said cells to proliferate and produce precursor cells.

Anchan et al also teaches that EGF or NGF increases neural cell proliferation in a dose-dependent manner.

Therefore, it would have been obvious to one of ordinary skill in the art to substitute one well known neural cell

proliferation growth factor for another and have a reasonable expectation of success. In fact Anchan et al teaches that EGF and NGF have the same effect on neural cells thus providing the skilled artisan with the proper motivation to substitute the EGF, taught by Reynolds et al or Anchan et al, for the NGF, taught in the process of Cattaneo.

Furthermore, the skilled artisan would have a reasonable expectation success in proliferating said neural cells in the methods of Cattaneo et al taken with Reynolds et al or Anchan et al. As decided in In re O'Farrel (7 USPQ 2d, 1673-1681, Fed Cir 1988), obviousness does not require absolute predictability of success. Indeed, for many inventions that seem quite obvious, there is no absolute predictability of success until the invention is reduced to practice. There is always at least a possibility of unexpected results, that would then provide an objective basis for showing that the invention, although apparently obvious, was in law nonobvious. In re Merck & Co., 800 F.2d at 1098, 231 USPQ at 380; Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co., 730 F.2d 1452, 1461, 221 USPQ 481, 488 (Fed. Cir. 1984); In re Papesch, 315 F.2d 381, 386-387, 137 USPQ 43, 47-48 (CCPA 1963). For obviousness under 35 U.S.C. 103, all that is required is a reasonable expectation of success. In re Longi, 759 F.2d 887, 897, 225 USPQ 645, 651-652 (Fed. Cir. 1985); In re Clinton, 527 F.2d 1226, 1228, 188 USPQ 365, 367 (CCPA 1976).

Cattaneo et al also differs slightly from the claimed invention by not adding a second growth factor to the second culture medium.

5 However, Masters et al teaches that growth factors such as IGF-I accelerates the differentiation of neural cells into differentiated neural cells. Thus it would have been obvious to one of ordinary skill in the art to add a growth factor which is known to accelerate the differentiation of neural cells to the culture which is already differentiating in the absence of the
10 growth factors which induced proliferation.

Accordingly, the claimed invention would have been prima facie obvious to one of ordinary skill in the art at the time the claimed invention was made, especially in the absence of sufficient, clear and convincing evidence to the contrary.

15 Claim 11 is rejected under 35 U.S.C. § 103 as being unpatentable over Cattaneo et al (Letters to Nature) taken with Reynolds et al (Soc. for Neurosci. Ab.) or Anchan et al (J. Cell. Biol.).

20 Accordingly, the claimed invention would have been prima facie obvious to one of ordinary skill in the art at the time the claimed invention was made, especially in the absence of sufficient, clear and convincing evidence to the contrary.

Claims 12-13 are rejected under 35 U.S.C. § 103 as being unpatentable over Gensburger et al taken with Yamada et al.

25 Gensburger et al teaches a method of isolating neural cells

from the tissue of a donor and culturing the cells in a culture medium comprising a growth factor which stimulates proliferation of the neural precursor cells in vitro.

5 Gensburger et al does continue to teach the differentiation of the precursor cells by contacting the cells with a substrate. However, Yamada et al teaches that as a component of the extracellular matrix, fibronectin, is well known in the art to modulate the differentiation of a variety of cell types. For example, fibronectin is known to differentiate neural cells.
10 Therefore, one of ordinary skill in the art would have a reasonable expectation of using fibronectin as the substrate to differentiate neural precursor cells.

Thus it would have been obvious to one of ordinary skill in the art to proliferate the neural cells by culturing the isolated
15 cells in a medium comprising a growth factor such as bFGF and continuing to differentiate the cells which were proliferated by contacting them to a substrate such as fibronectin.

Accordingly, the claimed invention would have been prima facie obvious to one of ordinary skill in the art at the time the
20 claimed invention was made, especially in the absence of sufficient, clear and convincing evidence to the contrary.

No claim is allowed.

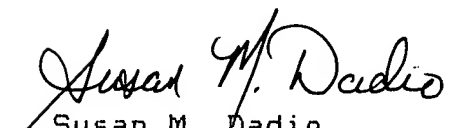
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner
25 Susan M. Dadio whose telephone number is (703) 308-2392.

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Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0196.

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Susan M. Dadio
September 28, 1993



DOUGLAS W. ROBINSON
SUPERINTENDING EXAMINER
ART UNIT 188